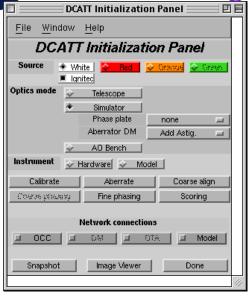


These slides show some of the main steps taken during a typical DCATT control experiment using the SSC configuration

The experiment starts with an aberrated optical system and ends with the aberrations removed by action of the DM

WF Sensing and Control Example



Upon invoking the DCATT control software, this "Init panel" appears

It provides access to all DCATT WFC functions, either in hardware or simulation

Press "Fine phasing" to start



This brings up the "Fine phasing" panel

Press "Data Acquisition"

This brings up the Data Acquisition" panel

Use the Data Acquisition panel to specify wavelength filter, exposure time, defocus, other parameters for each of 4 focal-plane images and 1 pupil image

Then press "Take pictures"

🛘 Fine Phasing Data Aquisition Panel 💹 🖽
<u>F</u> ile <u>W</u> indow <u>H</u> elp
Fine Phasing Data Aquisition Panel 😡
1 Image save data: modeldata.mat Defocus 10 mm save data: modeldata.mat Default data_01t.mat Load Save
+50 ND Filter none Wavelength 632.8 nm Bandwidth 1.5 nm
Exposure 100 % 0
Window size 512 Bin 1 Center: x = 804 y = 485
Average 4 frame Centroid: × 807.9 y = 483.9
Processing Dark Auto Cal Take sample frame
<insert comment="" here=""></insert>
Next image Take pictures I log 1:1 pix Cancel

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WF Sensing and Control Example (cont.)

This returns you to the Fine Phasing panel

🗖 Fine Phasing Control Panel 💹 🖽	B
<u>F</u> ile <u>W</u> indow <u>H</u> elp	
Fine Phasing Control Panel	
Data Acquisition 5 images	
Wavefront Sensing	
Wavefront Control Done	

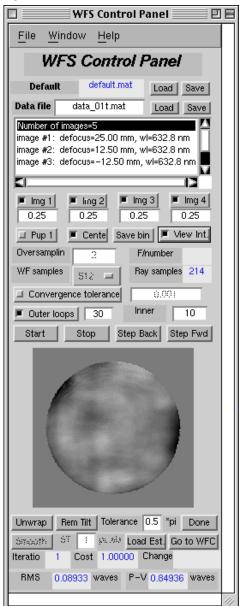
Now press "Wavefront Sensing"

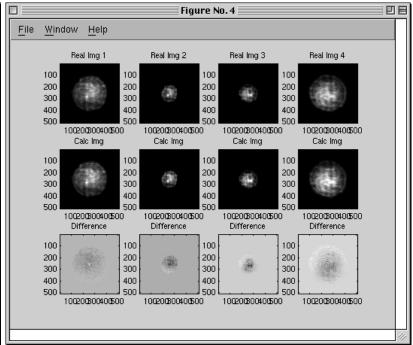
This brings up the Wavefront Sensing" panel

Select number of images to process, relative weights, other parameters, then press "Start"

The evolving WF estimate is displayed in the panel, and the data, the estimated data, and the difference frames are displayed in the Intermediate Results window

When converged, press "Go to WFC"





This is the Intermediate Results window

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WF Sensing and Control Example (cont.)

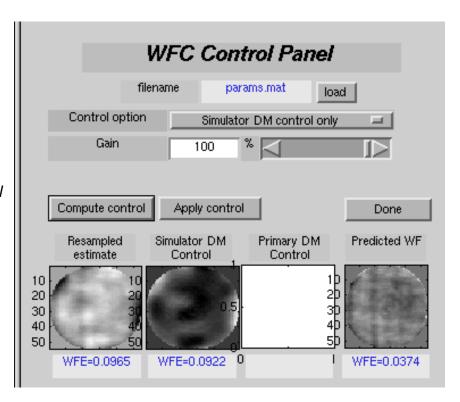
This brings up the Wavefront Control" panel

Select "Control option" from choice of Simulator DM, AO Bench DM, Segments, and various combinations

Select "Gain" value to damp control step size

Select "Compute control" to compute new actuator steps and and display "Predicted WF"

When control is to your liking, press "Apply control" to send commands to the hardware



After implementing this new control, the "Init" panel reappears and the process may be repeated